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Chal 052
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20 May 1958

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Dear Dick:

We are forwarding herewith Progress Letter No. 18 covering work performed in connection with System No. 4 during the period extending from 1 May 1958 to 1 May 1958.

Sincerely,

Burt

Burt

BFM
bqm

Enclosures:
CMCC Doc. 163X5.76
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Encl# 1
Chal 0152
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Progress Letter No. 18
Contract No. A-101
System 4

1 March 1958 to 1 May 1958

CMCC Document No. 163X5.76
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(This document contains a total of 4 sheets,
including this title sheet.)

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1. General

During the period covered by this progress letter, the following work was performed:

(1) Acceptance flight tests were successfully run on Serial 103 and delivery was made.

(2) Essentially all unit environmental tests and system laboratory tests were completed on Serial 104.

(3) Construction of Serial 105 was completed and laboratory testing of subassemblies and major units was initiated.

2. Serial 103

During this report period two flight tests were performed with Serial 103 before its delivery. On March 25 a five-hour flight was made but the test was aborted due to aircraft difficulties which resulted in loss of pressurization. On April 4 a seven-hour flight test was performed. During this flight, no gross failures or difficulties of any kind occurred. No film breakage occurred with the camera equipment and video recordings appeared good. On the basis of evaluation of the tape record, all functions appeared normal with the exception of the Band 1B receiver. A slewing difficulty due to mechanical problems appeared to exist. The Band 4 receiver appeared somewhat low in sensitivity. At the conclusion of this test Serial 103 was considered acceptable for delivery.

3. Serial 104

a. During the reporting interval Serial 104 was subjected to preliminary laboratory tests and environmental tests of the major units. All units, with the exception of the Band 1

receiver, have been through these phases of the test program successfully. The Band 1 receiver has not offered any outstanding problems. Most of the effort has been expended in obtaining a high level of equipment performance, and principally in achieving a uniformly high sensitivity. Some portions of the Band 1 tuning range have exhibited serious decrease in sensitivity.

b. All of the difficulties in Serial 103 described in the last progress letter have been rectified in Serial 104, with the exception of the film breakage problem in the camera. In most cases, film breakage has been due to a lack of positive film drive in the advance mechanism. Steps have been taken to provide a unit which affords a temporary "fix" for this deficiency, although such measures will not provide a high degree of reliability.

c. The magazine and advance mechanism now supplied with the camera equipment was intended only as an interim measure. The film magazine intended for use with the final version of the System 4 camera equipment has not yet been made available by the subcontractor. Steps are being taken to expedite as much as possible the delivery of these magazines. It is recognized that their need is two-fold: the present 400-foot magazine is inadequate from an operational point of view, and the reliability aspects of the interim magazine are marginal. The proposed production-model magazine would overcome both of these deficiencies. It has a rated capacity of 800 feet and is designed to meet the requirements for reliable and positive film drive.

4. Serial 105

Construction of Serial 105 was completed during the interval covered by this letter and preliminary unit and subassembly tests are now underway.

5. Planning

During the next reporting interval the following activities are scheduled:

(1) Conclude system environmental tests on Serial 104 and release the system to the field for flight tests.

(2) Devise a solution to the film breakage problem.

(3) Continue environmental tests of major units for Serial 105.